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Statistical Analysis of the Annual Average F.O.B. Prices  
of Canned Clingstone Peaches, 1924-25 to 1950-51

by

Sidney Hoos

July 1951

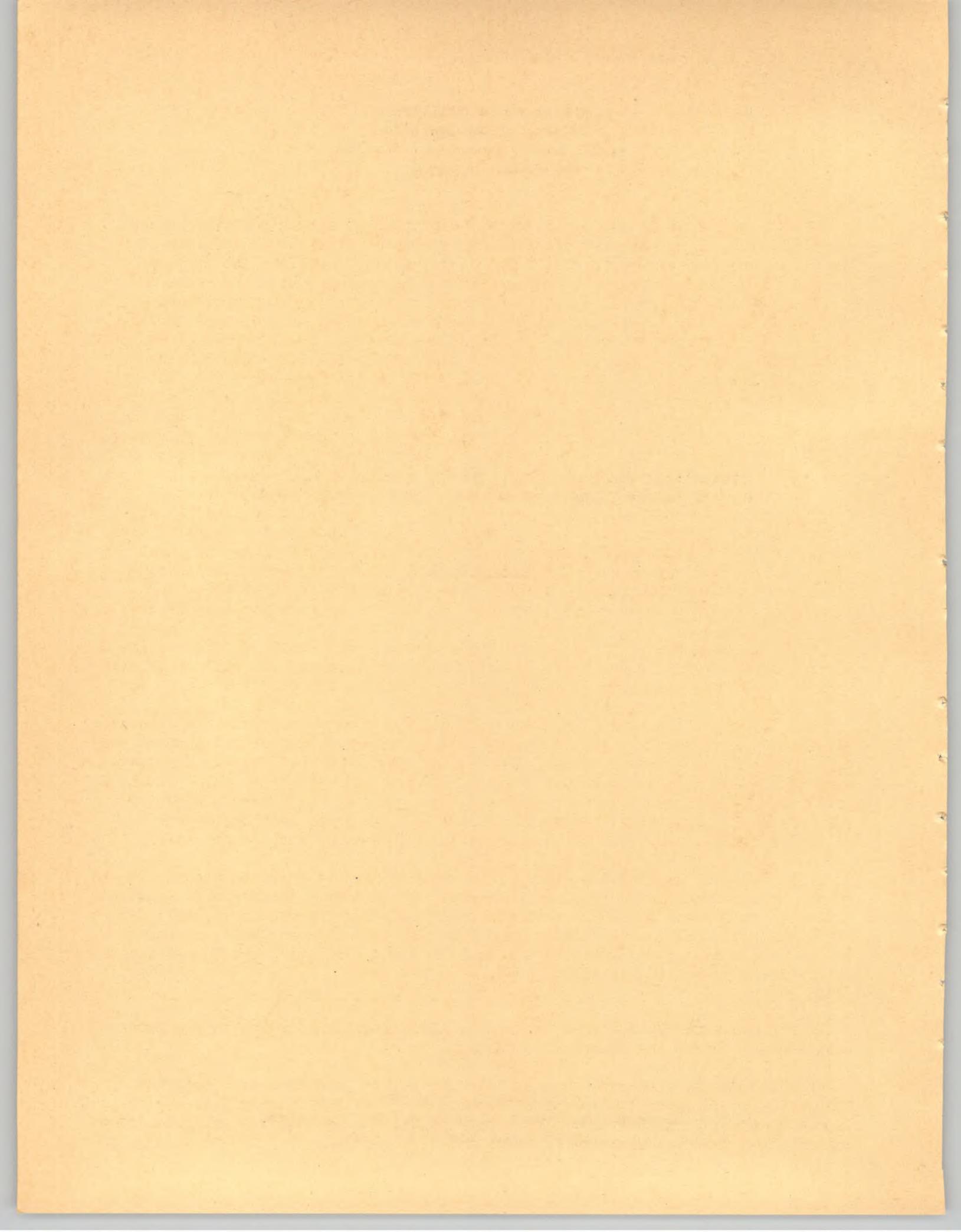
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Statistical Analysis of the Annual Average F.O.B. Prices  
of Canned Clingstone Peaches, 1924-25 to 1950-51

Sidney Hoos<sup>1/</sup>

For a number of years, the Giannini Foundation of Agricultural Economics has issued annual reports summarizing the results of statistical analyses of the annual average f.o.b. prices of canned clingstone peaches. The primary purpose of this year's report, prepared at the request of the Cling Peach Advisory Board, is to provide cling peach growers, canners, distributors and purchasers with the latest available statistical analysis of the major factors which have influenced the changes in the annual average f.o.b. prices of canned clingstone peaches.<sup>2/</sup> The period covered begins with the 1924-25 marketing season and ends with the 1950-51 marketing season. The war years, 1941-42 through 1945-46, are excluded from the analyses because of the abnormal conditions prevailing then, such as federal price control; and 1946-47 was excluded from the analyses because a large proportion of canner shipments that year went into the refilling of the supply pipe line rather than into consumers' hands.

This report, and the earlier ones as well, considers the major factors which have influenced the changes in the annual average f.o.b. prices of California canned clingstone peaches. Such major factors include the domestic movement of canned peaches from California canners, the level of nonagricultural income in the country, and the relative level of prices of canned fruits competing with canned clingstone peaches. Those price-influencing factors are shown, for the period under consideration, in table 1 appended to this report.

The f.o.b. prices of canned clingstone peaches used in the report are industry average prices; they are based on records of canners, and reflect actual operations of the canneries packing clingstone peaches in California.

The domestic movement of canned clingstone peaches from California canners has been derived from statistics issued by the Canners League of California; the total movement from canneries has been adjusted for exports to derive the movement to the domestic market. The analyses reflect the statistics on domestic movement into commercial trade channels; hence, some 1,172,766 cases taken by the federal government (Quartermaster Corps) for the armed services were excluded in deriving the 1950-51 movement into the commercial trade channels.

The index of United States nonagricultural income is based on reports issued by the United States Department of Commerce. At this time, nonagricultural income figures for the 1950-51 season are available only through April, 1951. In the nonagricultural income figures used for 1950-51 in the analysis, therefore, it has been necessary to estimate the value for May, 1951; it has been estimated at the level prevailing in April, 1951.

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1/ Professor of Agricultural Economics, Agricultural Economist in the Experiment Station and on the Giannini Foundation.

2/ Reference is also made to the following report just issued: "Selected Statistics on California Clingstone Peaches, for the 1951 Canning Season," by Sidney Hoos and R. E. Seltzer. University of California, College of Agriculture. Contribution from the Giannini Foundation (July, 1951).

## Geoch. verh.

The level of competing canned fruit prices has been measured by an index constructed in the same manner as in the previous reports on canned clingstone peaches; the construction of the index is explained in some detail in table 3 appended to this report. Here, it may be noted that the f.o.b. prices of canned Bartlett pears are based on reports from California and northwest canneries, and reflect actual operations of Pacific Coast canneries packing Bartlett pears. The f.o.b. prices of canned apricots are based on reports from California canners and also reflect actual operations of the packers. The prices for canned Bartlett pears and canned apricots were compiled by the Canners League of California, and the prices of canned clingstone peaches were compiled by the Cling Peach Advisory Board. The prices of canned Hawaiian pineapple are based on published quotations supplemented by available trade information.

Specific sources for the several series of data used in the analysis and more detailed specifications are noted in the explanatory footnotes to tables 1, 2 and 3 appended to this report.

As noted above, the average relationships which have prevailed between the f.o.b. prices of canned clingstone peaches and three factors were measured. To repeat, these factors are: (1) total domestic movement of California canned peaches from canners; (2) index of nonagricultural income payments in the United States; and (3) adjusted index of prices of competing canned fruits.

The average relations between the f.o.b. price of canned clingstone peaches and each of the major factors or independent variables have been analyzed on two bases: first, for the average price of "all grades and sizes"; and secondly, for the average price of "choice No. 2 $\frac{1}{2}$ ." The average relations may be summarized as follows:

#### Average F.O.B. Price of "All Grades and Sizes" of Canned Cling Peaches

- (a) A change of one million cases (24 No. 2 $\frac{1}{2}$  basis) in the domestic movement of California canned peaches, with both nonagricultural income and competing canned fruit prices held constant, was on the average accompanied by a change in the opposite direction of about 15 cents a case in the f.o.b. price (average of all grades and sizes) of canned clingstone peaches.
- (b) A change of 10 per cent in the index of nonagricultural income in the United States, with both the domestic movement of California canned peaches and the prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of about 34 cents a case in the f.o.b. price (average of all grades and sizes) of canned clingstone peaches.
- (c) A change of 10 points in the adjusted index of prices of competing canned fruits, with both the domestic movement of California canned peaches and nonagricultural income held constant, was on the average accompanied by a change in the same direction of about 25 cents a case in the f.o.b. price (average of all grades and sizes) of canned clingstone peaches.

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științific și moral de asemenea să nu se potrivește sănătatea  
fizică și fizică sănătatea sănătoasă.

De geestige stijl uit dat beeld schijnt te zijn: "Want als et behoeft  
een beeld van een stijl die niet kan worden van een stijl van een  
geestige persoon, dan moet die stijl een geestige stijl zijn."

prey on building up its own industry and bettering its position in the world market.

... (also 42, 44 MS) verso nell'uso lo spazio è  
frequentemente suddiviso secondo le regole di  
no assi, i quali sono quindi definiti come  
le sezioni ordinarie che costituiscono la  
struttura del testo (v. p. 40). Quindi  
l'asse non è un asse passante

Average F.O.B. Price of "Choice No. 2 $\frac{1}{2}$ " Canned Cling Peaches

- (a) A change of one million cases (24 No. 2 $\frac{1}{2}$  basis) in the domestic movement of California canned peaches, with both nonagricultural income and competing canned fruit prices held constant, was on the average accompanied by a change in the opposite direction of about 17 cents a case in the f.o.b. price (choice No. 2 $\frac{1}{2}$ ) of canned clingstone peaches.
- (b) A change of 10 per cent in the index of nonagricultural income in the United States, with both the domestic movement of California canned peaches and the prices of competing canned fruits held constant, was on the average accompanied by a change in the same direction of about 38 cents a case in the f.o.b. price (choice No. 2 $\frac{1}{2}$ ) of canned clingstone peaches.
- (c) A change of 10 points in the adjusted index of prices of competing canned fruits, with both the domestic movement of California canned peaches and nonagricultural income held constant, was on the average accompanied by a change in the same direction of about 32 cents a case in the f.o.b. price (choice No. 2 $\frac{1}{2}$ ) of canned clingstone peaches.

Differences between the actual f.o.b prices of canned clingstone peaches and those explained by the statistical analyses are given in table 4 of this report.

Average of 8.0.7 cases per day

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Technical Note.--With price as the dependent variable and the three factors mentioned above as the independent variables, the multiple linear regression equations fitted by the method of least square to the series covering the years 1924-25 through 1950-51 (excluding 1941-42 through 1946-47) are:

$$(1) \quad X_1 = -15.08680 - 0.15099/\bar{X}_2 + 8.26549/\log_{10}X_3 + 0.02510/\bar{X}_4; \text{ where} \\ (5.81832) \quad (25.15448) \quad (8.84782)$$

$$(2) \quad X_{1c} = -17.03390 - 0.17027/\bar{X}_2 + 9.08629/\log_{10}X_3 + 0.03164/\bar{X}_4 \\ (5.13696) \quad (21.64949) \quad (8.73185)$$

$X_1$  is the annual average f.o.b. price (all grades and sizes) of California canned clingstone peaches (in dollars per case);

$X_{1c}$  is the annual average f.o.b. price (choice No.  $2\frac{1}{2}$ ) of canned clingstone peaches (in dollars per case);

$X_2$  is the domestic shipments California canned peaches (in units of 1,000,000 cases);

$X_3$  is the index of nonagricultural income in the United States (1935-1939=100);

$X_4$  is the adjusted index of prices of competing canned fruits (1935-1939=100);

the figures in parentheses are t-ratios of the net regression coefficients;

the adjusted coefficients of multiple correlation are

$$\bar{R}_{X_1} \cdot X_2, \log_{10}X_3, X_4 = 0.989.$$

$$\bar{R}_{X_{1c}} \cdot X_2, \log_{10}X_3, X_4 = 0.983.$$

$$(1) \quad X_f = -15.0880 \cdot 10^{-3} + 0.052510 \cdot 10^3 \cdot \sqrt{0.000183 \cdot 10^3 + 8.8183 \cdot 10^3} + 0.000183 \cdot 10^3 \cdot \ln(0.000183 \cdot 10^3 + 8.8183 \cdot 10^3)$$

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$$.882 \cdot 0 = f(X_1, X_2, X_3, X_4)$$

$$-386.0 = \mu^X_{\text{S}_2} X_{\text{O}_2}^{300} + \mu^X_{\text{S}_2} X_{\text{O}_2}^{31}$$

TABLE 1

5.

Statistical Analysis of the Annual Average  
F.O.B. Prices of Canned Clingstone Peaches  
Variables Used in the Analysis

Year June through May	F.O.B. price canned clingstone peaches (dollars per case)		Domestic movement of California canned peaches (24 No. 2½ basis)	Index of nonagricultural income (1935-1939=100)	Adjusted index of prices of competing canned fruits (1935-1939=100)
	1	2	3	4	
	all grades and sizes	choice No. 2½	million cases	per cent	
1924-25	4.21	4.72	5.637	103.9	147.3
1925-26	3.78	4.23	8.511	112.7	123.3
1926-27	3.66	4.10	9.046	115.3	118.0
1927-28	3.17	3.45	11.163	116.2	112.7
1928-29	3.22	3.50	10.800	120.7	106.0
1929-30	4.08	4.57	7.845	120.2	117.3
1930-31	2.88	3.20	9.402	104.4	109.2
1931-32	2.55	2.80	6.058	85.5	102.9
1932-33	1.97	2.15	8.188	68.1	123.3
1933-34	2.31	2.49	7.480	75.5	124.5
1934-35	2.69	2.88	8.006	82.1	127.9
1935-36	2.51	2.66	8.726	91.0	109.9
1936-37	2.66	2.79	9.876	106.5	93.0
1937-38	2.96	3.11	7.531	103.3	101.6
1938-39	2.30	2.44	10.669	101.0	92.1
1939-40	2.44	2.56	9.551	109.6	93.1
1940-41	2.30	2.43	12.666	122.1	84.4
1947-48	4.70	4.78	15.134	285.9	65.1
1948-49	4.86	5.10	14.072	304.7	64.0
1949-50	3.94	4.07	17.312	305.2	54.1
1950-51a/	4.98	5.17	16.176	346.5	55.2

a/ Preliminary--subject to revision.

Sources:

Col. 1: Compiled by Cling Peach Advisory Board from reports by California canners. Prices are weighted average net sales prices of canned clingstone peaches received by California canners, f.o.b. cannery or dock, computed as follows: total number of cases billed divided into their total invoice value, f.o.b. cannery or dock. Resulting industry average prices were adjusted to a nonadvertised basis. Canners were instructed in computing and reporting invoice value to deduct (1) any special or trade discounts, (2) any prepaid charges included in delivered prices such as freight, marine insurance, etc.; but not to deduct regular brokerage (actually paid or credited to a third party), cash discount, swell allowance, label allowance and case allowance. Canners were instructed in reporting billings, in preparing the reports for 1950-51, to exclude sales to United States government.

(Continued on next page.)

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Table 1 continued.

Col. 2: Total commercial movement minus exports. Total movement compiled by the Canners League of California. Figures include both clingstones and freestones on a 24/2½ basis. See table 2.

Col. 3: Simple average of the pack-year monthly indices of national income excluding agricultural income, 1935-1939 average equals 100. Monthly income data compiled from U. S. Department of Commerce, Survey of Current Business. Federal Veterans Insurance Dividend Payments made in various months of the 1949-50 season were excluded from the dollar income figures before they were transformed into index number form. Index for May, 1951 estimated at a level of April, 1951.

Col. 4: For sources and method of construction, see table 3.

more than four years since our last visit, and  
that I have been away longer than that, before

TABLE 2

7.

Shipments of California Canned Clingstone and Freestone Peaches  
and United States Exports of Canned Peaches

Year June through May	California			United States Exports	California Domestic move- ment of canned peaches
	Canned clingstone movement	Canned freestone movement	Canned peach movement		
	1	2	3	4	
thousand cases, No. $2\frac{1}{2}$ basis					
1924-25					5,637
1925-26					8,511
1926-27					9,046
1927-28	12,907	296	13,203	2,040	11,163
1928-29	12,652	310	12,962	2,162	10,800
1929-30	9,204	362	9,566	1,721	7,845
1930-31	10,881	145	11,026	1,624	9,402
1931-32	7,445	82	7,527	1,469	6,058
1932-33	9,881	40	9,921	1,733	8,188
1933-34	9,214	65	9,279	1,799	7,480
1934-35	8,811	321	9,132	1,126	8,006
1935-36	10,757	274	11,031	2,305	8,726
1936-37	10,667	518	11,185	1,309	9,876
1937-38	8,125	677	8,802	1,271	7,531
1938-39	12,287	542	12,829	2,160	10,669
1939-40	10,626	878	11,504	1,953	9,551
1940-41	11,520	1,233	12,753	87	12,666
1941-42	10,568	2,161	12,729		
1942-43	12,926	1,191	14,117		
1943-44	10,739	598	11,337		
1944-45	12,285	337	12,622		
1945-46	12,236	510	12,746		
1947-48	14,518	1,291	15,809	675	15,134
1948-49	12,836	1,690	14,526	454	14,072
1949-50	16,332a/	1,463b/	17,795	483	17,312
1950-51c/	14,771d/	1,896	16,667	491	16,176

- a/ Reflects commercial movement; does not include government School Lunch purchases of 865,000 cases in June 1949-March 1950, nor an additional 331,000 cases in April, 1950. If School Lunch purchases were included, total movement would have been 17,528,219 cases.
- b/ Reflects commercial movement; does not include government School Lunch purchases of 30,500 cases in August, 1949. If School Lunch purchases were included, total movement would have been 1,493,127 cases.
- c/ Preliminary--subject to revision.
- d/ Reflects commercial movement; does not include government purchases of 1,172,766 cases. If government purchases were included, total movement would have been 15,943,675 cases.

## Sources:

- Cols. 1 and 2: Compiled by the Canners League of California.
- Col. 3: Column 1 plus column 2.
- Col. 4: United States Department of Commerce, Monthly Summary of Foreign Commerce of the United States. March-May 1951 exports estimated.
- Col. 5: Column 3 minus column 4.

the first time. It was a great success. I am sure it will be a great success again. I have a good deal of work to do now, but I am sure I will be able to do it well. I am looking forward to the future with a lot of hope and optimism.

I am also looking forward to the next year. I am sure it will be a great year. I am looking forward to the next year with a lot of hope and optimism.

I am also looking forward to the next year. I am sure it will be a great year. I am looking forward to the next year with a lot of hope and optimism.

TABLE 3

## Construction of Index of Prices of Canned Fruits Competing with Canned Peaches

Year June through May	Prices			Relatives of prices			Indexes		
	Canned Bartlett pears	Canned apricots	Canned Hawaiian pineapples	Canned Bartlett pears	Canned apricots	Canned Hawaiian pineapples	Unadjusted index of competing canned fruit prices	Index of nonagri- cultural income	Adjusted index of competing canned fruit prices
	1	2	3	4	5	6	7	8	9
	dollars per case	dollars per case	dollars per case	1935-1939 = 100			1935-1939 = 100		
1924-25	5.40	3.91	5.20	180.6	139.4	144.4	153	103.9	147.3
1925-26	5.44	3.72	4.30	181.9	132.7	119.4	139	112.7	123.3
1926-27	4.31	3.85	4.70	144.1	137.3	130.6	136	115.3	118.0
1927-28	4.60	3.97	4.20	153.8	141.6	116.7	131	116.2	112.7
1928-29	4.13	3.67	4.40	138.1	130.9	122.2	128	120.7	105.0
1929-30	4.82	3.97	4.70	161.2	141.6	130.6	141	120.2	117.3
1930-31	3.53	3.32	4.00	118.1	118.4	111.1	114	104.4	109.2
1931-32	2.82	2.64	3.00	94.3	94.2	83.3	88	85.5	102.9
1932-33	2.48	2.23	3.10	82.9	79.5	86.1	84	68.1	123.3
1933-34	2.64	2.37	3.60	88.3	84.5	100.0	94	75.5	124.5
1934-35	3.05	3.47	3.60	102.0	123.8	100.0	105	82.1	127.9
1935-36	2.92	2.93	3.60	97.7	104.5	100.0	100	91.0	109.9
1936-37	2.92	2.75	3.60	97.7	98.1	100.0	99	106.5	93.0
1937-38	3.07	3.02	3.80	102.7	107.7	105.6	105	103.3	101.6
1938-39	2.77	2.55	3.40	92.6	90.9	94.4	93	101.0	92.1
1939-40	3.27	2.77	3.60	109.4	98.8	100.0	102	109.6	93.1
1940-41	3.06	3.23	3.60	102.3	115.2	100.0	103	122.1	84.4
1947-48	7.07	5.20	5.80	236.5	185.4	161.1	186	285.9	65.1
1948-49	7.37	4.55	6.50	246.5	162.3	180.6	195	304.7	64.0
1949-50	5.15	4.11	6.00	172.5	146.6	166.7	165	308.8	54.1
1950-51a	6.90	4.83	6.40	230.8	172.3	177.8	191	346.5	55.2

(Continued on next page.)



Table 3 continued.

a/ Preliminary--subject to revision.

Sources:

Cols. 1 and 2: Compiled from records of canners. Prices are weighted average prices for all grades and sizes of cans, f.o.b. cannery on an unadvertised basis. Canned Bartlett pear prices for all years are for the Pacific Coast; except 1947-48 is for California canners. Canned apricot prices are for California.

Col. 3: Prices are for No.  $2\frac{1}{2}$  sliced fancy pineapple, f.o.b., Hawaiian, from published quotations supplemented by trade information.

Cols. 4,5 and 6: Prices given in columns 1, 2 and 3 in per cent of their 1935-1939 averages--canned Bartlett pears, \$2.990; canned apricots, \$2.804; canned pineapples, \$3.60.

Col. 7: Weighted combination of relatives given in columns 4, 5, and 6, using the following weights; canned Bartlett pears, 3; canned apricots, 2; canned pineapples, 6.

Col. 8: From table 1, column 3.

Col. 9: Column 7 as per cent of column 8.

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## Conclusions

1967-1970

TABLE 4

Actual and Estimated F.O.B. Prices of California Canned Peaches, 1924-25 to 1950-51  
 (Excluding 1941-42 through 1946-47)

Year June through May	All grades and sizes				Choice No. 2½			
	Actual price	Estimated price	Difference: column 1 minus column 2	Percentage difference: column 3 as per cent of column 1	Actual price	Estimated price	Difference: column 5 minus column 6	Percentage difference: column 7 as per cent of column 5
			1	2	3	4	5	6
	dollars per case			per cent	dollars per case			per cent
1924-25	4.21	4.43	-.22	-5.2	4.72	4.99	-.27	- 5.7
1925-26	3.78	3.68	+.10	2.6	4.23	4.06	+.17	4.0
1926-27	3.66	3.55	+.11	3.0	4.10	3.89	+.21	5.0
1927-28	3.17	3.13	+.04	1.3	3.45	3.40	+.05	1.6
1928-29	3.22	3.15	+.07	2.2	3.50	3.40	+.10	3.0
1929-30	4.08	3.86	+.22	5.4	4.57	4.24	+.33	7.2
1930-31	2.88	2.92	-.04	-1.4	3.20	3.16	+.04	1.2
1931-32	2.55	2.55	0	0	2.80	2.74	+.06	2.0
1932-33	1.97	1.92	+.05	2.5	2.15	2.13	+.02	0.9
1933-34	2.31	2.43	-.12	-5.2	2.49	2.70	-.21	- 8.3
1934-35	2.69	2.74	-.05	-1.9	2.88	3.04	-.16	- 5.7
1935-36	2.51	2.55	-.04	-1.6	2.66	2.76	-.10	- 3.7
1936-37	2.66	2.51	+.15	5.6	2.79	2.65	+.14	5.1
1937-38	2.96	2.97	-.01	-0.3	3.11	3.20	-.09	- 2.9
1938-39	2.30	2.18	+.12	5.2	2.44	2.28	+.16	6.8
1939-40	2.44	2.67	-.23	-9.4	2.56	2.82	-.26	-10.2
1940-41	2.30	2.37	-.07	-3.0	2.43	2.44	-.01	- 0.4
1947-48	4.70	4.56	+.14	3.0	4.78	4.77	+.01	0.3
1948-49	4.86	4.93	-.07	-1.4	5.10	5.16	-.06	- 1.3
1949-50	3.94	4.18	-.24	-6.1	4.07	4.29	-.22	- 5.5
1950-51a/	4.98	4.88	+.10	2.0	5.17	5.08	+.10	1.8

(Continued on next page.)

(Concluding on next page)

Table 4 continued.

a/ Preliminary--subject to revision.

Sources:

- Col. 1: Table 1, column 1, all grades and sizes.
- Col. 2: Estimated by use of data in table 1 applied to equation (1) on page 4.
- Col. 3: Column 1 minus column 2.
- Col. 4: Column 3 as per cent of column 1.
- Col. 5: Table 1, column 1, choice No.  $2\frac{1}{2}$ .
- Col. 6: Estimated by use of data in table 1 applied to equation (2) on page 4.
- Col. 7: Column 5 minus column 6.
- Col. 8: Column 7 as per cent of column 5.

DET 8: copy to be sent to DIA

COY & COYNE & MINT COYNE &

**W**hereas there is no such thing as a "natural" language, there is no such thing as a "natural" grammar.

3030 3 CONSTRUCTION